

constituents, aniline and p-cresidine, as pigment raw materials. Its production processes generate mother liquor, process filtrates, equipment washouts, spent filter aids and various solid residues. All wastewaters are discharged to a local POTW for treatment.

Nonwastewaters, approximately 20 metric tons per month (totaling 240 metric tons per year), are accumulated in dumpsters prior to disposal.

The facility believes that its nonwastewaters will not exceed the § 261.32(c)(1) listing levels. As less than 1,000 metric tons of total nonwastewaters are generated each calendar year, the facility can use knowledge of its processes and wastes to estimate its waste constituent levels under proposed § 261.32(d)(2). Based on its assessment of the raw materials used in the production lines, the facility calculates that its pigment production processes use no more than 1,800 kg/year of aniline and 150 kg/year of p-cresidine per calendar year; and no other K181 chemicals are used as input materials. In addition, the facility does not use aniline or p-cresidine for any other purposes onsite. Based on its assessment of its process chemistry and review of raw material purity information, the facility concludes that none of the other K181 chemicals are expected to be present in its nonwastewaters.

The facility thus determines that its pigment production nonwastewaters do not meet the definition of K181 because the wastes would not contain more than the listing levels of 9,300 kg/year and 660 kg/year of aniline and p-cresidine, respectively, and no other K181 constituents are expected in the wastes. The facility documents its findings as per (d)(2), and manages the waste as nonhazardous.

Example 3: Quantities Less Than 1,000 MT/yr: Using knowledge to show wastes do exceed § 261.32(c)(1), but do not exceed § 261.32(c)(2) listing levels, and thus can be landfilled as nonhazardous in landfill subject to § 258.40 or Subtitle C design standards (§ 261.32(d)(2)).

Facility C manufactures a variety of azo and anthraquinone dye products using many ingredients that include 1,3-phenylenediamine, 4-chloroaniline, and toluene-2,4-diamine. The spent process liquors, equipment rinses and other wastewaters resulting from the production are piped to storage tanks, mixed there, and then treated chemically and biologically in several treatment tanks. The treated wastewater is discharged to an adjacent river under an NPDES permit. The facility's records show that the treatment tanks generate wastewater treatment sludge at the

average rate of 60 metric tons a month. In addition, approximately 15 metric tons/month of spent filter aids and other process nonwastewaters result from the production processes. The facility commingles its nonwastewaters in storage bins, and ships them offsite for final disposal in a landfill.

The facility determines in the beginning of the calendar year that the combined quantity of the wastewater treatment sludge and other nonwastewaters in question is projected to be less than 1,000 metric tons for the year, and thus should be subject to the low volume K181 listing determination procedure under § 261.32(d)(2). Also, based on its well-documented knowledge of product manufacturing, waste generation and treatment, and wastewater analyses for NPDES discharge, the facility calculates using mass balance that the commingled nonwastewaters could not contain more than 100, 1,000, and 80 kg per year of 1,3-phenylenediamine, 4-chloroaniline, and toluene-2,4-diamine, respectively, using worst-case assumptions. The facility then compares these estimated loadings to the § 261.32(c)(1) listing limits and finds that their projected levels of 1,3-phenylenediamine and 4-chloroaniline are well below the listing limits; while the level of toluene-2,4-diamine exceeds the listing limit of 0.99 kg/year specified in § 261.32(c)(1). The facility now compares the projected level of toluene-2,4-diamine to the level in § 261.32(c)(2) of 140 kg/yr, and concludes that the nonwastewaters are not projected to trigger the § 261.32(c)(2) listing level. Therefore, the facility determines that its nonwastewaters can be managed as nonhazardous when disposed of in a municipal landfill cell subject to the design criteria in § 258.40 or the Subtitle C landfill design criteria.

The facility documents its findings as per § 261.32(d)(2), and manages the waste as nonhazardous in an appropriate landfill. The facility retains documentation regarding the landfill used to manage the waste as per § 261.32(d)(4).

Example 4: Quantities Greater Than 1,000 MT/yr: Using waste analysis to show wastes do exceed § 261.32(c)(1), but do not exceed § 261.32(c)(2) listing levels, and thus can be landfilled as nonhazardous in landfill that meets or exceeds § 258.40 (§ 261.32(d)(3)).

Facility C, described in the previous example, projects in January of the subsequent year, that it will still be able to successfully make a § 261.32(d)(2) demonstration that its wastes are not K181, and continues to dispose of its nonwastewaters at a permitted municipal landfill subject to § 258.40.

By October of that year, however, the facility determines that it has generated 1,000 metric tons of nonwastewater due to increased dye production. In addition, the facility estimates that another 200 metric tons would be generated by the end of December. To continue to demonstrate that its wastes are not K181, the facility now is subject to § 261.32(d)(3). Accordingly, the facility develops a waste sampling and analysis plan under § 261.32(d)(3), and then collects and tests representative waste samples for the remainder of the year to demonstrate that the nonwastewaters are still nonhazardous. The analytical results show the maximum concentrations of 29.2, 583, and 41.7 mg/kg for 1,3-phenylenediamine, 4-chloroaniline, and toluene-2,4-diamine, respectively, and contain no other K181 constituents. With these maximum constituent concentrations and the revised waste quantity of 1,200 metric tons, the facility calculates that the nonwastewaters contain no more than 35 kg,⁶¹ 700 kg, and 50 kg of 1,3-phenylenediamine, 4-chloroaniline, and toluene-2,4-diamine for the entire year, which are below the worst case constituent quantities initially estimated under the prior year's § 261.32(d)(2) demonstration. With this confirmation, the facility continues to ship the nonwastewaters generated in November and December to the appropriate municipal landfill. The facility documents its findings as per § 261.32(d)(3). The facility retains documentation regarding the landfill used to manage the waste as per § 261.32(d)(4).

For the next two years, the facility continues to generate more than 1,000 metric tons of nonwastewater each year, and thus continues to sample and analyze its wastes to demonstrate that they do not meet the K181 listing description. At the conclusion of the third year, the facility can revert to a knowledge-based § 261.32(d)(2) demonstration, so long as it doesn't modify its process in a way that might result in higher loadings in excess of the listing limits of any of the K181 constituents in its nonwastewaters.

Example 5: Quantities Greater Than 1,000 MT/yr: Using waste analysis to show wastes exceed § 261.32(c)(2) listing levels, requiring full Subtitle C compliance, pollution prevention subsequently reduces loadings below § 261.32(c)(2) levels.

Facility D produces a variety of dyes and pigments, some of which do not fall

⁶¹ Example calculation: 29.2 mg/kg × (1,200 metric tons × 1,000 kg/metric ton) = 35,000,000 mg = 35 kg